

Piezoelectric ceramics without energy storage ceramics

The attractive functional properties of BNT-based ceramics include piezoelectricity, electric-field-induced strain, and energy storage performance for applications ...

The high-entropy strategy recently introduced in ferroelectric energy storage ceramics presents a promising avenue for further enhancing the energy storage properties of ...

The piezoelectric energy harvesting is a promising, interesting and complex technology. Herein, the aim is to review the key groups of parameters that contribute to the ...

Abstract The ultrafast charge/discharge rate and high power density (PD) endow lead-free dielectric energy storage ceramics (LDESCs) with enormous application potential in electric ...

The authors enhance energy storage performance in tetragonal tungsten bronze structure ferroelectrics using a multiscale regulation strategy. By adjusting the composition and ...

As a result, it is crucial to explore self-charging energy storage devices that can seamlessly integrate both energy harvesting and storage components [6], [7]. Such devices ...

The contradiction between high piezoelectricity and uniquely poor temperature stability generated by polymorphic phase boundary is a huge obstacle to high-performance (K, ...

This includes exploring the energy storage mechanisms of ceramic dielectrics, examining the typical energy storage systems of lead-free ceramics in recent years, and ...

Micro-pores with low permittivity were introduced into the ceramics to improve the piezoelectric key parameters, including the piezoelectric voltage coefficient (g_{33}) and the piezoelectric energy harvesting figure of merit ...

Ultrahigh-power-density multilayer ceramic capacitors (MLCCs) are critical components in electrical and electronic systems. However, the realization of a high energy density combined with a high efficiency is a major ...

The authors make multi-oriented nanodomain in BiFeO₃-based ceramics via the strategic design of a dipolar region with high resilience to electric fields, achieving high energy ...

Furthermore, impedance spectroscopy analysis reveals the formation of a conductive core and a

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nonconductive shell within the sample. These findings highlight the ...

Here, we propose a strategy to increase the breakdown electric field and thus enhance the energy storage density of polycrystalline ceramics by controlling grain orientation.

Energy-based piezoelectric nanocomposites have received a great deal of attention due to their wide range of applications in electronics, sensors, actuators, and tissue ...

The piezoelectric energy harvesting is a promising, interesting and complex technology. Herein, the aim is to review the key groups of parameters that contribute to the performance of energy harvesting and to ...

P-E loops have been utilized to calculate the energy storage density (W_{rec}), loss density (W_{loss}), and energy storage efficiency (?) with change of electric field for the overview ...

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